MASSACHUSETTS GENERAL HOSPITAL
HARVARD MEDICAL SCHOOL

Department of Orthopaedic Surgery, Massachusetts General Hospital
55 Fruit Street, Yawkey 3, Boston, Massachusetts 02114-2696
https://sorg.mgh.harvard.edu/

Postdoctoral Research Fellow at SORG and CPAI

The Center for Physical Artificial Intelligence (CPAI) powered by SORG at the Department of Orthopaedic Surgery at Harvard Medical School and the Massachusetts General Hospital is seeking multiple motivated individuals for **Postdoctoral Research Fellow** positions starting in **2022** to work on development of biomedical devices and wearables in orthopaedic. The Postdoctoral fellow will be part of our efforts in development of multiple electrical, optical and ultrasonic biomedical devices. The primary focuse of the postdocs will be prototyping (hardware and software), training machine learning algorithms, development of graphical user interface, and running the clinical trials for different devices. The Postdoctoral will also assist the team with several aspects of the ongoing clinical and translational research at SORG. Please check The SORG website for more detailes about our team (https://sorg.mgh.harvard.edu/).

The mission of SORG and CPAI is to improve patient outcomes through clinical research and engineering in Orthopaedics. The applicant will be working under the supervision of Dr. Joseph Schwab, chief of spine surgery, director of MGB orthopaedic registries, director of SORG, co-director of Stephan Harris Chordoma center, and Dr. Hamid Ghaednia, Co-Director of SORG, CPAI, and MGB Registries in a very collaborative environment. This position would provide an excellent opportunity for transition to independence by writing several grants, understanding the clinical challenges in orthopaedic surgery, gain hands-on experience in the design and development of novel machine learning-based predictive models, create long-term networks, and creating a strong publication record. Applications will be evaluated as they are received and will continue until positions are filled.

Responsibilities:

- Mechanical and electrical prototyping from conceptualizing to design and manufacturing.
- Signal processing and development of machine learning algorithms.
- Meeting with surgeons, collaborators, and other stakeholders while representing the laboratory.
- Helping with the ongoing clinical trials in the lab for validation of the devices.
- Assisting in writing grants including NIH, and NSF grants.
- Writing journal papers, tutorials, and technical reports.
- Mentoring undergraduate and master students.
- Contributing to study design, development, and statistical analysis.
- Help with other ongoing projects at SORG, for the development and validation of machine learning predictive algorithms.

Position Qualifications:

- Ph.D. in STEM (preferably electrical, mechanical, or biomedical engineering)
- Strong academic and publication record.
- Hands-on experience with developing machine learning models.
- Hands-on experience with developing electrical circuits.
- Mechanical design.
- Programming skills in Python and matlab.

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- Robust written and verbal communication skills.

Pluses:

- Experience in development of graphical user interface.
- Experience working with patient data.
- Prior experience in patening process.
- Experience with MATLAB and SQL.

Education:

Applicants from all areas of science, engineering, and biomedical sciences with a strong academic record are welcome to apply.

How to Apply:

Please send a cover letter (2-page max) explaining your story and qualifications, two recommendation letters, and CV/Resume directly to Dr. Joseph Schwab (jhschwab@mgh.harvard.edu) and Dr. Ghaednia (hghaednia@mgh.harvard.edu) with the subject of "**Postdoctoral Research Fellow at CPAI**". In the email include a short description of your interests, qualifications, and background. Slides, videos and/or images of the past projects/presentations/designs are also recommended.